DOCUMENT RESUME

ED 379 381 UD 030 309

AUTHOR Rivera-Batiz, Francisco L.; Marti, Lilian
TITLE A School System at Risk: A Study of the Consequences of Overcrowding in New York City Public Schools. IUME Research Report No. 95-1.
INSTITUTION Columbia Univ., New York, N.Y. Inst. for Urban and Minority Education.
PUB DATE Jan 95
NOTE 22p.; Prepared for the New York City Citizen's Commission on Planning for Enrollment Growth.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Class Size; *Crowding; Educationally Disadvantaged; Elementary Secondary Education; *High School Students; *Low Achievement; Poverty; Public Schools; *School Size; School Space; Socioeconomic Status; Student Attitudes; Teacher Attitudes; *Teachers; *Urban Schools
IDENTIFIERS New York (New York); *New York City Board of Education

ABSTRACT

This research report presents data showing that overcrowding in the New York City public schools is having significantly negative effects on instruction and learning in the system. The impact is particularly strong in schools that have a high proportion of students of low socioeconomic background, where overcrowding is sharply linked to lower achievement. In New York City, enrollment growth has been quick and is occurring at all grade levels. Ninety-one of 111 high schools (82 percent) were operating above their capacity in 1993-94, and 415 of 774 (56 percent) elementary school buildings were above their capacities. Data from the Board of Education document the overcrowding, and a study of four overcrowded schools (130 percent above utilization rate) with surveys of 213 teachers and 599 students, indicates attitudes toward school crowding. Both students and teachers feel deeply affected by overcrowding, with many considering it the most serious issue facing the schools. Both students and teachers feel overwhelmed, discouraged, and often disgusted. Four tables present study findings. (Contains 17 references.) (SLD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED 379 381

INSTITUTE FOR URBAN AND
MINORITY EDUCATION

A SCHOOL SYSTEM AT RISK: A STUDY OF THE CONSEQUENCES OF OVERCROWDING IN NEW YORK CITY PUBLIC SCHOOLS

By

Dr. Francisco L. Rivera-Batiz
Director, Institute for Urban and Minority Education
Teachers College, Columbia University
and
Lilian Martí
Research Associate, Institute for Urban and Minority Education
Teachers College, Columbia University

Teachers College

Columbia University

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☐ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
E. Flaxman
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)"

New York, New York 10027

D030309

BEST COPY AVAILABLE

A SCHOOL SYSTEM AT RISK:
A STUDY OF THE CONSEQUENCES OF OVERCROWDING IN NEW YORK CITY PUBLIC SCHOOLS

By

Dr. Francisco L. Rivera-Batiz
Director, Institute for Urban and Minority Education
Teachers College, Columbia University
and
Lilian Martí
Research Associate, Institute for Urban and Minority Education
Teachers College, Columbia University

RESEARCH REPORT PREPARED FOR THE NEW YORK CITY CITIZEN'S COMMISSION ON PLANNING FOR ENROLLMENT GROWTH

January 1995

IUME Research Report No. 95-1

This New York City Citizen's Commission on Planning for Enrollment Growth is chaired by Ricardo Fernandez and P. Michael Timpane. The comments and suggestions of Commission members and staff are gratefully acknowledged. The authors are thankful to Robert Agodini and Anabelle Guerrero for efficient research assistance.

A SCHOOL SYSTEM AT RISK:
A STUDY OF THE CONSEQUENCES OF OVERCROWDING IN NEW YORK CITY PUBLIC SCHOOLS

By

Dr. Francisco L. Rivera-Batiz and Lilian Martí
Institute for Urban and Minority Education
Teachers College, Columbia University

INTRODUCTION

This research report presents data showing that overcrowding in New York City public schools is having significantly negative effects on instruction and learning in the system. The impact is particularly strong among those schools that have a high proportion of students with low socioeconomic background. Among these schools, overcrowding is sharply linked to lower student achievement. We find that, other things the same, the proportion of students passing tests of reading proficiency and mathematics competency in overutilized schools in 1993 was between two to nine percentage points *lower* than in schools that were not overcrowded.

The study also finds that both students and teachers feel deeply affected by overcrowding. Analysis of a sample of overcrowded schools in New York City indicates that overcrowding is viewed by students and teachers as an extremely serious issue, perhaps the most important problem confronting them. They feel overwhelmed, discouraged and often disgusted with the space shortage and its consequences for learning.

The conclusions of this study are of great significance for the future of children in New York. One can only conclude that the scars left by an absence of planning for enrollment growth in the coming years may be deep in the minds and spirits of the new New Yorkers entering the public school system.

THE BACKGROUND OF ENROLLMENT GROWTH

Rising birth rates and increased immigration flows have led to ballooning enrollment increases in many urban school districts in the nation. Table 1 displays the rate of growth of enrollment in some of the largest urban public school systems. In terms of absolute increase in number of students enrolled, the fastest-growing system during the 1984 to 1992 period was the Los Angeles Unified District, which grew by 90,620 students. In New York City, the enrollment growth during this time period was equal to 62,763.

As enrollment growth has climbed, many of the affected school districts have sought alternatives to deal with overcrowding and overutilization in the schools. The School Board of the Los Angeles unified school district voted in 1989 to engage in year-round education. Leasing, new construction and a whole array of other approaches have been employed to deal with the

TABLE 1. ENROLLMENT GROWTH IN SELECTED URBAN SCHOOL DISTRICTS, 1984-1992

School System	Enrollment Fall 1984	Enrollment Fall 1992	Enrollment Growth 1984 - 1992
New York City	931,768	994,531	62,763 (6.7%)
Los Angeles Unified	549,161	639,781	90,620 (16.5%)
Dade County	223,854	303,346	79,492 (35.5%)
San Diego Unified	108,640	125,116	16,476 (15.2%)
Boston	55,613	62,407	6,794 (12.2%)

Source: National Center for Education Statistics, *Digest of Education Statistics*, Washington, D.C., various issues; and New York City Board of Education.

growth. In Boston, Major Menino recently (August 1994) charged a Commission to design a blueprint for new construction oriented to accommodate the new students. Other school districts are involved in a wide array of initiatives to absorb the increased enrollment.

In New York City, enrollment growth has been quick and is occurring at all grade levels. Table 2 presents the changes in enrollment growth between Fall 1984 and Fall 1993. Decomposed by level, elementary school enrollment was the fastest-growing during the nine years considered. Close to 50,000 additional students were enrolled in elementary schools by 1993 compared to 1984.

TABLE 2. ENROLLMENT IN NEW YORK CITY PUBLIC SCHOOLS, 1984-1993

Enrollment as of October of the School Year

School Year	Elementary	Junior High	High School	Special Ed. Schools	Total
1984-85	455,526	188,952	272,618	14,672	931,768
1985-86	464,056	184,956	261,556	25,663	936,231
1986-87	469,779	181,587	273,769	14,007	939,142
1987-88	472,340	182,856	270,665	14,072	939,933
1988-89	475,976	184,984	261,097	15,186	937,248
1989-90	479,629	186,513	257,963	15,533	939,638
1990-91	486,773	189,770	264,187	15,886	956,616
1991-92	490,646	192,793	273,913	14,794	972,146
1992-93	495,948	194,514	288,458	15,611	994,531
1993-94	504,592	197,198	297,703	17,235	1,016,720

Source: New York City Board of Education, *Annual Reports and Annual Budget Requests*, various issues.

From October 1989 to October 1993, the number of students enrolled in New York City public schools rose by 77,082. Most of these students were absorbed without a major investment in new schools. Indeed, between 1989 and 1993, 27 new buildings were built, supplying only 13,412 additional seats for students. This left 63,670 students to be accommodated through increased utilization in schools, growing class sizes, placements in leased space, etc.

Overcrowding is becoming a common phenomenon in a rising number of schools. Among high schools, 91 of 111 buildings in use (82 percent) were operating above their capacity during the 1993-94 school year. For elementary schools, 415 out of 744 school buildings (56 percent) were above their capacity in 1993-94, and among middle schools, 51 out of 184 school buildings (28 percent) were overcrowded.

What are the consequences of overcrowding for instruction and learning in the schools? The next section examines this issue.

THE CONSEQUENCES OF OVERCROWDING

The relationship between school overcrowding and student achievement is quite complex. A school is overcrowded when it is operating with an enrollment exceeding its capacity. How the school deals with the extra students, however, may determine the consequences of overutilization on student achievement. The additional students may be absorbed through increased class size. What impact do larger classes have on student achievement? This issue had been studied for many years. However, the evidence on the issue is still inconclusive, with some studies indicating a negative relationship between class size and achievement, other studies

finding a *positive* linkage between the two variables, and many researchers finding no connection at all between the two.[1] At the same time, one must be aware that some of the most sophisticated, longitudinal studies available do tend to find a negative connection between increase class size and student achievement.[2]

A second way through which schools may absorb enrollment growth is through the use of additional space, keeping class size constant. This involves finding additional space within schools. Sometimes, however, the space that is found is hardly suitable for teaching and learning. The following *New York Times* article describing the situation of one teacher in an Elmhurst public school graphically reflects the problem: "...her students spend their schooldays in the anteroom to the teachers' bathroom, trying to study English as a Second Language while other teachers constantly walk through to use the toilet on the other side of the wall. Like hundreds of other Queens teachers struggling with some of the most crowded schools in the country, she is forever devising new tactics to divert her students' attention from an unmistakable truth: there is barely any room in the City's public school system."[3] Insofar as students find it harder to concentrate and get motivated in cramped, unsuitable space, overcrowding would have a negative impact on student achievement.[4] At the same time, if the teacher finds himself or herself limited in the ability to apply the most efficient and successful teaching methods because of the

---

[1] See, for example: Madden (1968), Summers and Wolfe (1975), Loewy (1979), Eberts, Schwartz and Stone (1990), Fowler and Walberg (1991), Lamdin (1992) and Caldas (1993).

[2] Such as Pate-Bain, Achilles, Boyd-Zaharias, and McKenna (1992).

[3] See Firestone (1994), p. B7.

[4] The behavioral, learning and motivational effects of overcrowding on human beings has been widely documented; see Griffit and Veitch (1971), Kutner (1973), and Loewy (1979).

unsuitable space, student achievement will also suffer.

Overcrowding may not affect negatively student achievement and, in fact, there are good reasons why one may observe some overcrowded schools with higher academic achievement than underutilized schools, other things the same. When overcrowding occurs in a serious way, threatening to disrupt learning in the classroom, both teachers and students increase their efforts relative to situations where no overcrowding exists. This was, for instance, suggested in the *New York Times* quote noted above. The result is that student achievement is not affected as much as one would expect. On the other hand, the greater time and effort dedicated by teachers to sustain a positive learning atmosphere has other, additional, repercussions. The substantial stress and tension of having to sustain high effort levels everyday in response to overcrowding can generate severe stress among school staff. As a result, the quality of life in the schools can deteriorate sharply. It is thus essential to measure the consequences of overcrowding not only on measures of academic achievement but also on the quality of life in schools. Although our focus at this point is on the connection between overcrowding and student achievement, later sections will look at quality of school life issues.

Student achievement and overcrowding in schools can be positively correlated. Why? The association relies on a reverse causality between the two variables. Arguments were made earlier about how an overcrowded school, by disrupting the learning process, may cause a reduction in academic achievement. In this case, the argument is that increased overcrowding *causes* reduced student achievement. There is, on the other hand, a reverse line of causality which suggests that higher student achievement in a school may cause overcrowding. It is possible that schools with high average academic achievement attract more students and, therefore, cause overcrowding.

Although, in this case, overcrowding in schools may still have some negative effects on academic achievement, the impact is hidden by the fact that the successful schools are also those in greater demand and thus more overcrowded. As Anthony Amato, Superintendent of Community School District 6 puts it: "Academic improvement is almost a Catch-22. It attracts more people and forces us into double sessions." [5]

In addition to recognizing that the correlation between overcrowding and student achievement may be positive or negative, it must be understood that there are other factors to consider in examining the relationship between these two variables. There are other forces influencing overcrowding. Any analysis of the relationship between overcrowding and student achievement must hold these other factors constant. For instance, many overcrowded schools also have large numbers of recent immigrant students. Many of these students have limited English proficiency. They thus often perform below others in English reading tests. As a result of this, one may observe highly overcrowded schools also having lower mean reading achievement levels. This is a spurious correlation, related to the fact that both academic achievement and overcrowding are related to a third variable: the inflow of recent immigrants with limited English proficiency. A casual look at figures on overcrowding, academic achievement and the proportion of recent immigrant students in different schools cannot disentagle the effects of overcrowding versus those of English proficiency on achievement. Rigurous statistical analysis can. In the empirical research carried out in this paper, the use of multivariate statistical techniques allowed an examination of the impact of overcrowding on student achievement, holding other variables --such as the proportion of recent immigrant students-- constant.

---

[5] In Kingson Bloom (1994).

METHODOLOGY

The study used two sets of data to examine the consequences of overcrowding in schools. Firstly, New York City Board of Education school profile data on elementary and middle schools was utilized to examine the linkages between overcrowding and student achievement. These data included information on a number of demographic, social, economic, school organization, and other variables for all public schools in New York City. The impact of overcrowding on student achievement was examined through the use of multiple regression statistical analysis. The results of that analysis are reported in the main text of this report, in the next section. Details of the estimated statistical equations is available from the authors by request.

Secondly, a study was carried out of four overcrowded schools in the New York City public school system. The schools were randomly selected among a group of overcrowded schools. All of them were operating at above the 130% utilization rate. Their location was selected to reflect the diversity in experience within the City. It included schools in the Bronx, Manhattan and Queens. There was also variability by level, with elementary and high schools both included in the analysis. Students, teachers and administrative staff were interviewed, facilities were visited and studied, and questionnaires were distributed to students and teachers. The goal was to obtain the opinions and perceptions of students and teachers on the learning environment within the school and how overcrowding has affected it.

The next section summarizes the results of the statistical analysis of how overcrowding is linked to student achievement in elementary and middle schools in New York City's public school system. Later sections review the results of the opinion surveys carried out by the study.

THE CONNECTION BETWEEN OVERCROWDING AND STUDENT ACHIEVEMENT

In analyzing the impact of overcrowding on student achievement, the research used a multivariate regression statistical analysis where the dependent variable included various measures of student achievement in schools and the independent variables reflected an array of forces influencing achievement. The latter included: (1) whether the school was operating above its capacity, that is, whether it was overcrowded; (2) the school capacity or size, (3) the average salary of teachers in the school (to reflect the overall educational qualifications of the teachers in the school and their seniority), (4) the percentage of students who were recent immigrants (arrived in the U.S. within three years of interview), which reflects the role of immigrant adjustment and language in determining student achievement; and (5) average class size in the school. The analysis also explored whether different school locations within the City, such as Queens or the Bronx, had any impact on the analysis.

Socioeconomic background has been found to have strong linkages to student achievement.[6] Students from families with high socioeconomic status also have greater economic and educational resources at home that complement those in school. As a result, students from families with high income tend to perform at higher levels in standardized achievement tests. In order to incorporate this important consideration in the research, separate analyses were carried out for: (1) schools with a high proportion of students from families with high socioeconomic status, and (2) schools with a high proportion of students with low socioeconomic status. The analysis was carried out separately first for schools where the proportion of students coming from

---

[6] See Coleman (1966) and (1987).

poor families (families with income below the poverty line) was higher than the citywide average. The same analysis was then performed on schools where the proportion of students from poor families was below the city-wide average.

The research was carried out for elementary schools and middle schools in the New York City public school system. The student achievement of third graders and sixth graders in the schools was the subject of the study. Student achievement in a school was measured by the percentage of students in the grade passing minimum standards in (1) the Degrees of Reading Power (DRP) test, which is a citywide test of reading given in grades 2 through 10; and (2) the Pupil Evaluation Program Test (PEP) in mathematics, which is a New York State-mandated mathematics test administered in grades 3 and 6.

RESULTS FOR SCHOOLS WITH A HIGH PROPORTION OF STUDENTS FROM POOR FAMILIES

As discussed earlier, the analysis was done separately for schools with students from low and high socioeconomic status. We start by reporting the results for students in schools with comparatively lower socioeconomic status. In these schools, the major results of the analysis in terms of overcrowding are the following:

(1) The proportion of sixth graders in overutilized facilities passing the minimum standard for the DRP reading examination was between four to nine percentage points *below* that in schools that were not overcrowded, holding other things constant.

(2) In the PEP mathematics test, the proportion of sixth graders in overutilized schools who passed the exam was between two to six percentage points *below* that in schools that were not overcrowded, other things held constant.

RESULTS FOR SCHOOLS WITH A LOW PROPORTION OF STUDENTS FROM POOR FAMILIES

Results for students in schools with comparatively *high* socioeconomic status are examined next. In these schools, the major results of the analysis are the following:

(1) The proportion of sixth graders in overutilized facilities passing the minimum standard for the DRP reading examination was approximately four percentage points *above* that in schools that were not overcrowded, holding other things constant.

(2) In the PEP mathematics test, the proportion of sixth graders in overutilized schools who passed the exam was between two to four percentage points *above* that in schools that were not overcrowded, other things held constant.

CONCLUSIONS ON THE IMPACT OF OVERCROWDING ON STUDENT ACHIEVEMENT

These results suggest that, among schools with high proportions of poor students, overcrowding has a clearly defined negative impact on student achievement. For schools with students from families with higher socioeconomic status, the connection between overcrowding and achievement is dominated by the fact that schools with high academic achievement attract more students and cause overcrowding. Thus overcrowding is *positively* correlated with student achievement. The question of whether the overcrowding as such causes the high-performing students in these schools to learn less, or not, cannot be answered from the results obtained in this report.

The next section discusses how overcrowding has affected the quality of life in schools, as told by students and teachers in overcrowded schools.

NEW YORK CITY STUDENTS AND TEACHERS SPEAK ON OVERCROWDING

The study surveyed 599 students and 213 teachers in overcrowded New York City public schools. Table 3 displays the reactions of students in the schools studied on the overcrowding situation in their schools and its consequences. The following conclusions are obtained:

1. A total of 62.6 percent of all children surveyed felt that the number of students in their school was too large. Only 1.2 percent of the students declared that their school was too small.

2. Almost 50 percent of students surveyed said that there were too many students in their classrooms. Only 4 percent declared that there were too few students in the classroom.

3. Close to 40 percent of all students declared that they had problems concentrating in their classes when they were learning something new.

4. Although some students could still find places to study quietly in school in spite of the overcrowding, 43.9 percent said they could not find such a place, if they wanted to.

5. In spite of the overcrowding, 64.9 percent of all students surveyed said they could find a place where they could talk to teachers privately.

6. In a reflection of what children feel about the overall quality of life in these schools, close to half (41.9 percent) of the non-graduating students surveyed did not want to remain in the school next year. This was in spite of the fact that the overwhelming majority (88.3 percent) responded that they had a lot of friends in their school.

TABLE 3. NEW YORK CITY SCHOOL CHILDREN SPEAK ON OVERCROWDING

Question	Distribution of Responses (%)
1. The number of students in my school is:	
Too small	1.2%
O.K.	35.7
Too large	62.6
No answer	0.5
2. I feel that in most of my classes there are:	
Too many students in the classrooms	48.9%
Just enough students in the classrooms	33.7
Too few students in the classroom	4.0
I have no opinion	12.9
No answer	0.5
3. Is there a place in school where you can sit quietly to study if you wanted to?	
Yes	38.9%
No	43.9
Don't know/No answer	17.2
4. Is there a place in school where you can talk to teachers privately?	
Yes	64.9%
No	16.9
Don't know/No answer	18.2
5. Do you have problems concentrating in your classes when you are learning something new?	
Yes	40.1%
No	49.9
Don't know/No answer	10.0
6. Would you like to study in this school next year?	
Yes	41.9%
No	35.5
Don't know/No answer	23.1
7. Do you have a lot of friends here?	
Yes	88.3%
No	7.2
Don't know/No answer	4.5

These data are based on 599 responses of students in overcrowded New York City public schools.

Table 4 displays the results of the survey administered to teachers in the New York City public school system. As in the case of students, teachers in overcrowded schools also report to be deeply disturbed by the situation. Teachers were asked to rank in importance a nun.ber of items or factors which they felt should be addressed in their school. To ensure reliability of the results two similar questions were asked on this issue in different parts of the questionnaire. The responses to both questions are displayed in Table 4. Here, only the results of the first question are discussed, but the conclusions are very similar. They are:

1. The three most important items that teachers felt had to be addressed in their school this year were:

   A. Student overcrowding (with 87.8 percent of teachers indicating that this was a very important issue),

   B. The need for adequate classroom space (with 87.3 percent of teachers responding that this was a very important issue), and

   C. Staff stress management related to overcrowding (with 62 percent of all teachers sampled indicating that this was a very important item).

2. For the teachers, overcrowding and lack of space were more important to deal with than other issues such as sanitation, the need for more administrative personnel, maintenance, and violence, among others.

3. Teachers feel very strongly that overcrowding is seriously eroding learning and quality of life in their school. More than 75 percent of the teachers reported that overcrowding affects a lot classroom activities, instructional techniques and student achievement. More than 70 percent also felt that the administration of daily activities has been seriously impacted by overcrowding, leading to staff burnout. Many also reported engaging in cooperative efforts to deal with overcrowding, continually learning and seeking new ideas to deal with the problem.

3. Taking everything into consideration, only about 50 percent of all the teachers sampled looked forward to each working day in their school. The remainder either didn't look forward to working in the school each day or were indifferent to the whole thing.

TABLE 4. NEW YORK CITY PUBLIC SCHOOL TEACHERS SPEAK ABOUT OVERCROWDING

I. Ranking of importance of items that need to be addressed in this school this year:

Item	Percentage who indicate item is very important
Student Overcrowding	87.8%
Need for adequate classroom space	87.3
Staff stress management related to overcrowding	62.0
Availability of classroom resources and/or materials	52.1
Maintenance/sanitation	49.3
Student/teacher interaction	42.7
Noise levels around school	39.4
Physical fights between students	29.6
Need for additional administrative personnel	17.4

II. Ranking of importance of factors that need to be addressed in this school:

Factor	Percentage who indicate item is very important
Classroom space	82.2%
Need of instructional materials	54.0
Discipline climate	51.2
Stress Management because of overcrowding	48.8
Hiring more teaching staff	44.6
Budget	41.3
Sanitation	41.3
General policy	36.6
Teaching Methods	30.0
Curriculum	29.6
Need for more administrative personnel	13.6

III. In your opinion, how much has overcrowding affected the following areas within the school?

	A lot	Some	Not at all	Don't know/Blank
School physical structure	75.6%	15.1%	2.3%	7.0%
Classroom activities	75.1	16.9	1.9	6.1
Staff burnout	74.2	16.9	2.8	6.1
Administration of daily activities	73.2	18.3	2.8	5.6
Student achievement	70.9	21.1	1.4	6.6
Instructional techniques	70.4	22.5	1.4	5.7
Student behavior	67.6	25.9	3.3	3.3
Staff development	40.2	36.1	14.4	9.3
Noise levels	42.3	33.8	16.4	7.5

Based on 213 responses of school teachers in overcrowded New York City public schools.

CONCLUSIONS

This research report presents data showing that overcrowding in New York City public schools is having significantly negative effects on instruction and learning in the system. The following conclusions stand out:

I. Among students in schools with comparatively *lower* socioeconomic status, the following was found:

(1) The proportion of sixth graders in overutilized facilities passing the minimum standard for the Degrees of reading Power (DRP) reading examination was between four to nine percentage points below that in schools that were not overcrowded, holding other things constant.

(2) In the Pupil Evaluation Program (PEP) mathematics test, the proportion of sixth graders in overutilized schools who passed the exam was between two to six percentage points below that in schools that were not overcrowded, other things held constant.

II. Among students in schools with comparatively *high* socioeconomic status, the major results of the analysis are the following:

(1) The proportion of sixth graders in overutilized facilities passing the minimum standard for the DRP reading examination was approximately four percentage points *above* that in schools that were not overcrowded, holding other things constant.

(2) In the PEP mathematics test, the proportion of sixth graders in overutilized schools who passed the exam was between two to four percentage points *above* that in schools that were not overcrowded, other things held constant.

III. These results suggest that, among schools with high proportions of poor students, overcrowding has a clearly defined negative impact on student achievement. For schools with students coming from families with higher socioeconomic status, the connection between overcrowding and achievement is dominated by the fact that schools with high academic achievement attract more students and cause overcrowding. Thus overcrowding is *positively* correlated with student achievement. The question of whether the overcrowding as such causes the high-performing students in these schools to learn less, or not, cannot be answered from the results obtained in this report.

IV. The study surveyed 599 students in overcrowded New York City public schools. The reactions of students on the overcrowding situation in their schools are the following:

1. A total of 62.6 percent of all children surveyed felt that the number of students in their school was too large. Only 1.2 percent of the students declared that their school was too small.

2. Almost 50 percent of students surveyed said that there were too many students in their classrooms. Only 4 percent declared that there were too few students in the classroom.

3. Close to 40 percent of all students declared that they had problems concentrating in their classes when they were learning something new.

4. Although some students could still find places to study quietly in school in spite of the overcrowding, 43.9 percent said they could not find such a place, if they wanted to.

5. In spite of the overcrowding, 64.9 percent of all students surveyed said they could find a place where they could talk to teachers privately.

6. In a reflection of what children feel about the overall quality of life in these schools, close to half (41.9 percent) of the non-graduating students surveyed did not want to remain in the school next year. This was in spite of the fact that the overwhelming majority (88.3 percent) responded that they had a lot of friends in their school.

V. The study surveyed 213 teachers in overcrowded New York City public schools. The reactions of students on the overcrowding situation in their schools are the following:

1. The three most important items that teachers felt had to be addressed in their school this year were:

A. student overcrowding (with 87.8 percent of teachers indicating that this was a very important issue),

B. The need for adequate classroom space (with 87.3 percent of teachers responding that this was a very important issue), and

C. Staff stress management related to overcrowding (with 62 percent of all teachers sampled indicating that this was a very important item).

2. For the teachers, overcrowding and lack of space were more important to deal with than other issues such as sanitation, the need for more administrative personnel, maintenance, and violence, among others.

3. Teachers feel very strongly that overcrowding is affecting the conditions of both teachers and students in their school. More than 75 percent of the teachers reported that overcrowding affects a lot classroom activities, instructional techniques and student achievement. More than 70 percent also felt that the administration of daily activities has been seriously impacted by overcrowding, leading to staff burnout. Many also reported engaging in cooperative efforts to deal with overcrowding, continually learning and seeking new ideas to deal with the problem.

4. Taken everything into consideration, only about 50 percent of all the teachers sampled looked forward to each working day in their school. The remainder either didn't look forward to working in the school each day or were indifferent to the whole thing.

REFERENCES

Caldas, S.J., "Reexamination of Input and Process Factor Effects on Public School Achievement," *Journal of Educational Research*, Vol. 86, No. 4, March/April 1993.

Coleman, J.S., "Families and Schools," *Educational Researcher*, September 1987, 32-38.

Coleman, J.S., E. Campbell, C. Hobson, J. McPartland, A. Mood, F. Weinfield and R. York, *Equality of Educational Opportunity*, U.S. Government Printing Office, Washington, D.C., 1966.

Eberts, R.W., E.K. Schwartz and J.A. Stone, "School Reform, School Size, and Student Achievement," *Economic Review, Federal Reserve Bank of Cleveland*, Vol. 26, No. 2, 1990, 2-15.

Firestone, D., "Crowded Schools in Queens Find Space in Unusual Places," *The New York Times*, June 8, 1994, p. B7.

Fowler, W.J. and H.J. Walberg, "School Size, Characteristics, and Outcomes," *Educational Evaluation and Policy Analysis*, Vol. 13, No. 2, 1991, 189-202.

Griffit, W., and R. Veitch, "Hot and Crowded: Influences of Population Density and Temperature on Interpersonal behavior," *Journal of Personality and Social Behavior*, Vol. 71, 1971, 93-98.

Hanushek, E.A., "Conceptual and Empirical Issues in the Estimation of Educational Production Functions," *Journal of Human Resources*, Vol. 14, No. 3, 1979, 351-381.

Kingson Bloom, J., "A School District Continues to Expand but its Population is Expansing Even Faster," *The New York Times*, October 30, 1994.

Kutner, D.J., "Overcrowding: Human responses to Density and Visual Exposure," *Human relations*, Vol. 26, 1973, 31-50.

Lamdin, Douglas J., "Testing for the Effect of School Size on Student Achievement within a School District," mimeo., Department of Economics, University of Maryland at Baltimore County, 1992.

Loewy, J.H., "Effects of Density, Motivation and Learning Situation on Classroom Achievement," mimeo., Washington University at St. Louis, 1979.

Madden, J.V., "An Experimental Study of Student Achievement in General Mathematics in Relation to Class Size," *Social Science and Mathematics*, November 1968, 620-627.

Pate-Bain, H., C.M. Achilles, J. Boyd-Zaharias, and B. McKenna, "Class Size Does Make a Difference," *Phi Delta Kappan*, November 1992.

Riew, J., "Scale Economies, Capacity Utilization, and School Costs: A Comparative Analysis of Secondary and Elementary Schools," *Journal of Education Finance*, Vol. 11, 1986, 433-446.

Summers, L. and B. Wolfe, "Which School Resources Help Learning? Efficiency and Equality in Philadelphia Public Schools," *Federal Reserve Bank of Philadelphia Business Review*, February 1975.

Wiener, J.I., "A Longitudinal Investigation of the Class Size-Student Achievement Relationship," mimeo., Washington University at St Louis, 1977.